

Literacy among the Secondary Schools Students in Malaysia

Fong Peng Chew, *Member, IACSIT*

Abstract—This study is aimed at exploring the literacy rate in Malay language, English and mathematics among the secondary school students in Malaysia and the factors that influence it. The conceptual framework of this study is based on the concept of literacy adopted by the International Adult Literacy Survey (IALS). A total of 5,635 respondents from the Remove Class to Form five were drawn from secondary schools throughout the country. The findings showed that the basic literacy rate overall was at 95.2%, while critical literacy rate was 71.2%. Malay language literacy rate at the basic and critical level was higher than the rate for English and mathematics. Therefore, the Malaysia Ministry of Education (MOE) should emphasize literacy in mathematics particularly of the secondary school students. One-way ANOVA analysis showed significant differences in the rate of basic literacy and critical levels of students according to their level of education and ethnicity. Thus the cooperation of all parties is essential to ensure that the secondary school students achieve a satisfactory literacy rate.

Index Terms—International adult literacy survey (IALS), literacy, Malaysia, secondary schools

I. INTRODUCTION

Traditionally literacy has been defined as the ability to read and write. UNESCO's definition of literacy refers to the ability to identify, understand, interpret, design, communicate, and learn to use printed and written materials relating to a variety of contexts. Literacy rate also is a key indicator for measuring human capital and the ability of nations to develop their human capital [1], [2]. Policy makers view literacy may increase the individual's employment opportunities and access to education at a higher level. Basic concepts of literacy, which communicate via text and printing, are embodied in the goals and focus of each educational system in the world. In the education context in Malaysia, literacy proficiency is the foundation and most important goal of the national system of education.

II. LITERACY AMONG THE SECONDARY SCHOOL STUDENTS

A. Statement of the Problem

Although the national education system, put on the shoulders of the Ministry of Education Malaysia (MOE), has successfully built the human capital of the country, some

gaps in educational attainment still exist, particularly in issues related to literacy proficiency of students in secondary schools.

The Education Development Master Plan (PIPP) [3] had touched on several issues directly related to literacy of students in the education system. First, 7.7 percent of primary schools pupils or a total of 115,000 in Phase I in 2004 have not mastered reading, writing and arithmetic (3Rs, or known in Malaysia as "3M"). Second, there were dropouts or students who leave the school system of MOE at 1.9 per cent in urban and 1.2 per cent in rural areas for cohort 1999 to 2004 at the primary level and 9.3 per cent in urban and 16.7 per cent in rural areas for cohort 2000 to 2004 at secondary level.

It is clear that the issue of literacy is a fundamental issue that contributes to high dropout rates at primary and secondary schools and about the 3M at the primary level. The issue of literacy also is a major challenge in achieving the aims of the MOE and provision of human capital as outlined in the PIPP 2006-2010 and the 9th Malaysia Plan.

Based on the requirements of the MOE to address literacy issues in a thoughtful and focused manner, an exploratory study was made to ascertain the literacy rate of secondary school students and other variables that affect the rate of literacy of secondary students in the national education system.

B. Need for Literacy Citizen

Many policy analysts contend that the literacy is an important indicator to measure a country's human capital [4] [5]. The importance of literacy to human capital development of a country like Malaysia is urgent as a result of the continuous impact of globalization to the future and well-being of the country. Human capital in literate development is very important to a country to meet the growing demand for producing men power who are knowledgeable, skilled, and qualified and meet the challenges of globalization [6].

The need to produce people who are literate through the education system also has to do with the quality of life of a country development. According to Dighe, Anita and Reddi [7], the aim of education is to enable people to make their own choices in defining the desired quality of life. This can be done through the empowerment that allows an individual to participate in the political, economic and social development underlying them. Directly, empowerment in the knowledge society depends on the level of literacy among the citizens. Abd Rahim Abd. Rashid [8] argues, although economic factors are fundamental to the progress of the country, people who are literate will secure the future of the more progressive countries.

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Fong Peng Chew is with the Department of Language & Literacy, Faculty of Education, University of Malaya, 50603 Kuala Lumpur, Malaysia (e-mail: fpchew@um.edu.my).

According to the Education Development Master Plan 2006-2010, mastery of reading, writing and arithmetic or 3M implicated as a major contributing factor to the cumulative deficit and the different levels of achievement among students. The rate of primary school students with the 3M Malaysia at 7.7 per cent in 2004, was considered above the normal level of 5 per cent under an education system that need to be addressed [9]. This issue is a challenge to the country's education system as difficulty mastering of 3M will expose the students to risk the dropout of education. Weak in the 3M also considered a necessary achievement gap to be narrowed so that the access, equity and quality of the educational system could be improved in the country.

C. Objectives of the Study

- To learn the literacy rate of Malay language, English and Mathematics of secondary school students in Malaysia.
- To identify the factors those affect the rate of literacy.

D. Research Questions

- What is the literacy rate of secondary school students in Malaysia at the basic level and critical rate?
- Are there significant differences in literacy levels of secondary school students in Malaysia according to level of education and ethnic factors?

III. METHODOLOGY OF THE STUDY

A. Conceptual Framework of the Study

The conceptual framework of this study is based on the concept of literacy adopted by the International Adult Literacy Survey (IALS), which refers to the ability to understand and use printed information in the activities of home, office and in the community to develop their potential and achieve self-knowledge [10].

In accordance with the practice of literacy measurement by UNESCO, this study will measure involving three types of literacy skills of reading, writing and arithmetic (3M). Specifically in reading; this study will also measure the depth reading skills through reading measurement phrases. With detailed measurement of reading skills, this study will see students reading ability more clearly and precisely as the identify words and ideas; determine and identify relevant information; integrating the words and grammar of the text; interpret the information accurately, deliver inferences and analyze and evaluate information. To measure reading skills and to suit the use of two main languages in Malaysian schools, the study will look at literacy in two languages, namely Malay and English.

For calculating literacy or mathematics, it refers to the knowledge and skills to use operating application in Mathematics and use of numbers in the right context. Counting skills in this study include procedural knowledge, the ability to give reasons and problem solving in order to function effectively in daily life.

B. Instrument of the Study

The instrument used a conceptual framework based on a study to measure four types of literacy of secondary students that should be obtained after six years primary national

education program. This instrument takes into account the context and circumstances of Malaysia's education system and literacy concepts as applied in various countries and UNESCO.

C. Sampling

Population of the study consisted of all secondary school students in Malaysia from the remove class to form five in government schools and government-aided secondary schools in Malaysia except special education schools. Samples were selected through the use of two methods of two-stage stratified sampling and systematic sampling. The method is applicable to the selection of samples from large population numbers and wide distribution. Two-stage stratified sampling involves two steps of implementation: (a) State level where the school sample selection of 324 schools have been made according to the proportion of schools in rural and urban areas, and (b) the school level where 60 students were randomly selected from a list of school students and represent every level of the remove class until Form Five. The sampling obtained forms the total of 5,000 students.

A pilot study to determine the construct validity of the draft instrument was implemented in seven schools in the Federal Territory of Kuala Lumpur and Selangor. Cronbach alpha value of .87 indicates the reliability of the instrument.

The data analysis was done using SPSS 17.0 to answer the research questions through descriptive and inferential analysis. Descriptive analysis using percentage, frequency and mean had been made to provide basic information of respondents include demographic information and literacy rates of students. While inferential analysis using one-way ANOVA was done to analyze the differences in variables to answer the research questions.

IV. RESPONDENTS OF THE STUDY

Respondents of the study consisted of 5,000 students from Remove class to Form Five, namely: 4,470 (89.4%) of students from National Secondary Schools, 90 (1.8%) of students from boarding schools, 170 (3.4%) of students from Religious Schools, 205 (4.1%) of students from the Technical Schools, 45 (0.9%) of students from the Capital Special School, and 15 (0.3%) of students from the School of Sports. Based on the location, the total 2,980 (59.6%) of respondents were from rural schools, while the rest numbering 2,020 were from urban schools. In terms of ethnicity, the majority of respondents or 3,305 (66.1%) were Malay students, followed by Chinese students 512 (15.5%), Indian 225 (6.8%), and others 347 (10.5%).

V. FINDINGS

Research question 1: What is the literacy rate of secondary school students in Malaysia at the basic and critical level?

TABLE I: OVERALL LITERACY RATE OF THE BASIC LEVEL

Basic level	Mean	SD	Median	Mode	Literacy rate ^o
Overall	71.90	16.89	74.70	94.06	95.20 ^o
Malay	75.87	16.86	79.54	88.64	95.20 ^o
English	76.64	21.40	80.00	100.00	93.20 ^o
Mathematics	61.90	24.36	61.54	84.62	73.90 ^o

Based on Table I, the overall literacy rate for the basic level of secondary school students in Malaysia is 95.2%. Findings are based on the survey respondents of 5300 students with mean score 71.91 and standard deviation (SD) 16.89. The median of the sample was 74.7 and the mode was 94.06. Basic level of literacy rate according to the literacy test was 95.20% for Malay literacy test (mean 75.87; SD 16.86); for English literacy tests, the literacy rate was 93.20% with a mean score of 76.64 and SD 21.04. While for test mathematical literacy, the literacy rate was 73.90% for the basic level with mean 61.90 and SD 24.36.

TABLE II: OVERALL LITERACY RATE OF THE CRITICAL LEVEL

Critical level	Mean		SD	Median
	Mode	Literacy rate ^o		
Overall	48.57	14.32	48.72	52.50
Malay	72.08	17.83	77.78	86.11
English	29.31	15.04	27.50	17.50
Mathematics	36.50	18.44	33.33	19.44

Referring to Table II, the overall literacy rate for secondary school students at critical level in Malaysia is 71.20%. The findings are based on survey respondents of 5300 students with mean score of 48.57 and standard deviation (SD) 14.32. The median of the sample is 48.72 and mode 52.50. Basic level of literacy rate according to the literacy test was 71.20% for Malay literacy test with a mean score of 72.08 and SD 17.83. For English literacy tests, the literacy rate was 27.20% with a mean score of 29.31 and SD 15.04. While for mathematics literacy test, the literacy rate reached critical level of the students is 36.80% with a mean score of 36.50 and SD 18.44.

Research question 2: Are there significant differences between the literacy level of the secondary school students in Malaysia with level of education and ethnic factors. One-way ANOVA analysis was applied to the data to see the level of education and ethnic factors as independent variables with the dependent variable, namely the literacy rate of the students.

TABLE III: OVERALL LITERACY RATE OF MALAYSIA SECONDARY SCHOOLS STUDENTS BASED ON THEIR LEVEL OF EDUCATION

Level of Literacy	Form	Mean	SD	df	F	Sig.	η^2
Basic	Remove class	45.04	16.12	5	496.71	.715	.004
	One	65.90	17.24				
	Two	68.64	17.10				
	Three	74.33	15.70				
	Four	75.40	14.80				
Critical	Remove class	27.30	8.32	5	566.70	.715	.004
	One	42.90	13.21				
	Two	45.80	13.82				
	Three	50.30	13.63				
	Four	51.50	13.43				
	Five	56.20	12.90				

Value of F from one-way ANOVA for all levels of the basic literacy is 496.71 ($df = 5, p < .05$) while the value of F for the overall critical level of literacy is 566.7 ($df = 5, p$

$< .05$). These results show that there are significant differences in mean scores in the basic level of literacy and critical level of the students according to their level of education. Comparison of the overall literacy rate of the students in Table III shows the students from higher levels score higher mean compare to students from lower levels. Thus, the overall literacy rate for both basic level and critical for secondary school student in Malaysia has a relationship with the level of education factor; the literacy rate increased in parallel by the level of education of the student.

TABLE IV: OVERALL LITERACY RATE OF MALAYSIA SECONDARY SCHOOLS STUDENTS BASED ON ETHNICITY

Level Of literacy	Ethnicity	Mean	SD	df	F	Sig.	η^2
Basic	Malays	73.57	16.10	3	123.16	.02	
	Chinese	69.27	18.33				
	Indian	69.00	18.21				
	Others	67.65	17.10				
Critical	Malays	50.16	13.62	3	162.69	.00	.03
	Chinese	45.80	15.80				
	Indian	45.67	13.70				
	Others	44.17	15.70				

Value F from ANOVA for the overall level of basic literacy is 123.16 ($df = 3, p < .05$) while the value F for the overall level of critical literacy is 162.69 ($df = 3, p < .05$). These results show that there is a significant difference in the overall literacy rate of basic and critical level of students according to ethnicity. Comparison of the overall literacy rate shows the mean scores of the Malay students at the basic and critical level was higher than the mean scores of students of Chinese, Indian and others. These findings clearly indicated that the overall literacy rate of secondary school students has relationship with the ethnic factor for basic and critical level and that scores of literacy rate were higher for Malay students than for the Chinese and Indian students.

VI. DISCUSSION

On the whole, the overall literacy rate of the high level at 95.2% showed essentially secondary students was successful in the program after six years of primary education. This study found that basic level of mathematics literacy rate of 75.6% is much lower than the basic level of literacy rate of Malay Language (95.20%) and English (90.3%). This represents 24.4% of secondary students have the low basic level of mathematics literacy rate.

This situation is worrying because the basic level of mathematics literacy proficiency is required if the students were to pursue a secondary education program. The national education system should ensure the secondary education program produces students who proficient at least at the basic level of literacy in mathematics so that they may join the basic working market to work under the employers with the desired mathematics literacy. Conversely, if the students complete their secondary education without a good basic level of mathematics literacy, job and further education opportunities for such students will be very limited. In addition, if the education system fails to upgrade the skills of secondary students in mathematics, it will bring long-term effects in the provision of quality human capital for the knowledge-based economy [11].

According to the results of this study, the critical level of overall literacy rate of 71.2% was significantly lower compared to the overall level of basic literacy rate of 95.2%. This finding reflects the quality of the literacy among the students in Malaysia who have yet to achieve the objectives as outlined by the national education policy for the secondary education program. Although the overall level of basic literacy rate was high, the need to increase the critical literacy rate is even greater at the secondary level. This is because the critical literacy level involves the high-level generic skills such as critical and creative thinking; the ability to evaluate and synthesize information from various resources is a prerequisite for students to follow the curriculum of secondary level which is more challenging in terms of diversity of content and skills being taught [12].

The study also found that the overall literacy rate at the basic and critical level increased according to the level of education of the students. This shows that, as a whole, the secondary school curriculum under the MOE program is appropriate and in accordance with student progress in an orderly and systematic way.

Literacy rate at basic and critical level is high for Malay students, followed by Chinese students, others and Indians. However, when literacy rates are detailed on the components of Malay, English and Mathematics, Malay students only are highest in literacy compared to other ethnics in the Malay language, while the Chinese students excel in Mathematics and Indian students in English.

Different patterns of the literacy rate are related to the background and cultural values of a particular orientation of the Malays, Chinese and Indians. Malays and Indians usually show their socialization and speaking skills (socio-linguistic competencies) better in the profession that requires this type of skills such as administrators, teachers or lawyers. These fields are more likely to be pursued by the Malays and Indians compared to other ethnics. Chinese were seen as having the advantage of computing skills; therefore, they tend to join careers related to economics and business.

This finding is consistent with the previous studies [13]-[15] showing that the issue of students' weakness, especially Malay students in English and Mathematics compare to the Chinese and Indian students was due to the Malay students' background being colored by their attitudes, cultural factors, and family matters including culture, environment and socioeconomic status. These factors adversely impact many Malay students, such as lack of literacy and academic performance. Malay students also have less of excellence in the education than Chinese students in particular in subjects that are considered difficult, such as English and Mathematics. This finding indirectly supports the perception that Malay students are high in socio-linguistic skills, but weak in computing skills.

VII. RECOMMENDATIONS

Based on these key findings, suggestions were made as follows. Teachers need to be made to understand the concept of literacy and how literacy capabilities of students have an impact on the development of school students. Teachers also need to understand two different learning situations when

thinking about literacy and literacy skills taught in school. This is because the teaching and learning of literacy is actually a learning process to understand or to learn to learn. Education programs for teachers need to be strengthened in applying the understanding of literacy, pedagogical practices and the importance of addressing student literacy. Therefore, it is suggested that teachers are given special training in teaching aspects of literacy and related skills.

The Alliance for Excellent Education [16] suggested that the schools serious about addressing the literacy and academic achievement issues should focus on two aspects of schools, namely the teaching and learning and school infrastructure. This two-pronged approach or dual-enhancement involves the enhancement of teaching and learning process through: (1) teaching reading comprehension in real time and across the curriculum; (2) practicing the principles of strong pedagogy, (3) the promotion so that students can learn on their own, eventually building a positive learning culture, (4) the use of text in a coupling or collaborative learning; (5) emphasis on teaching students in strategic or long-term objective; (6) teaching intensive writing; (7) integration of ICT, and (8) on-going formative assessment of pupils.

While strengthening the infrastructure and organizational aspects of the school can be made by: (i) allow more time in class schedules for literacy instruction, (ii) emphasize the professional development of teachers in teaching literacy specifically; (iii) assess the teaching and learning and students literacy program summatively and continuously; (iv) to establish teams of teachers to teach literacy; (v) emphasize leadership and curriculum which focuses on strengthening the literate students, and (vi) provide consistent and comprehensive literacy intervention programs.

Therefore, it is recommended that the MOE strengthen the curriculum such that it is responsive to the literacy needs of adolescent students and improve school infrastructure and organization in order to include elements of literacy in strengthening the existing infrastructure, education programs, school ethos and the minds of principals, teachers and students.

VIII. CONCLUSION

In conclusion, although the basic level of literacy of secondary school students is at a satisfactory level, low rate for critical literacy is a signal to the MOE to implement appropriate literacy interventions specialized for adolescent students at the secondary schools. Hence the cooperation of all parties is essential to ensure that the literacy rate of secondary school students achieves a satisfactory level.

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F. P. Chew was born in Malaysia. Obtained her Bachelor of Arts (Hons) in 1996, Master of Art in 1997, and Doctorate of Philosophy in 2004 from National University of Malaysia, Bangi, Selangor, Malaysia. Her specialization is Malay Studies. Chew is senior lecturer at University of Malaya, Malaysia after teaching eight years as a secondary schools teacher. Publications include books and article in journals as listed below: [1] Chew Fong Peng, Teh Ying Wah & Zahari Ishak, "Computer-Assisted Instruction in Teaching Early Childhood Literature", *WSEAS TRANSACTIONS on INFORMATION SCIENCE and APPLICATIONS*, vol. 9, no. 6, pp.1493-1502, 2009. [2] Loh Sau Cheong, Ow Siew Hock, Chew Fong Peng, Zahari Ishak, Lee Siew gim. "Use of Visual Auditory Simulation Tasks in Promoting On-Task Behaviour of Children with Special Needs". *The Educational Review*, Vol 23 No. 1: 373-380, 2011. [3] F.P. Chew & M.H.Teong & Z.Ishak. School Homework and Its Relationship with Student Academic Achievement in Malaysia. *International Journal of Human and Social Science*, 6, 446-449, 2012. The current research doing by Dr. Chew is a study on teaching and learning multilingual of universities students at Beijing, China; previous research include literacy among secondary school students, national literature forming national integration, ethnic literature comparison between Malaysia and Indonesia, the Effectiveness of Visual Auditory Simulation Technique (VASTech) in promoting on-task behavior of children, and usage of ICT in teaching and learning Mandarin in primary and secondary schools, developing the Malay children's literary resources in ICT, and evaluating the national education system in Malaysia. Dr. Chew is a Senior member of International Economics Development Research Centre (IEDRC), member in IAICS (International Association of Intercultural Communication Studies), Malaysia Social Science Society, and Malaysia National Association of Writers, Malaysia Association of Translation and Creative Writing. Publication under IEEE titled "Computer-Assisted Instruction in Teaching Early Childhood Literature" as listed in number 1 above and ISI journal titled "Use of Visual Auditory Simulation Tasks in Promoting On-Task Behaviour of Children with Special Needs" as listed in number 2 above.